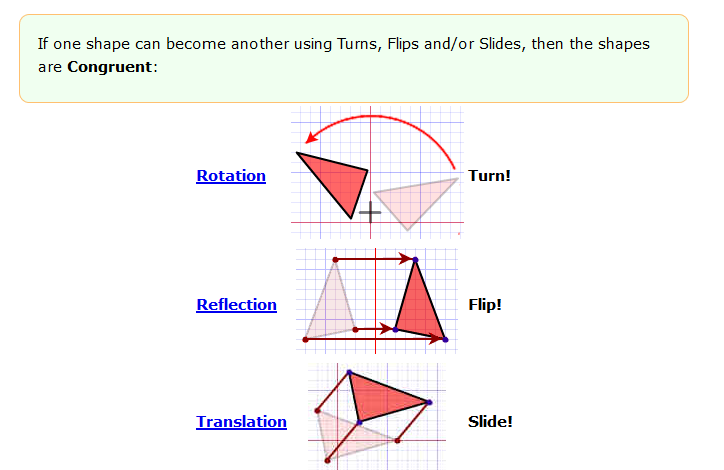
Congruency

Congruency means equal. For polygons that means if we have two polygons they are *congruent* if all their corresponding (matching) sides are equal and all of their corresponding angles are equal.

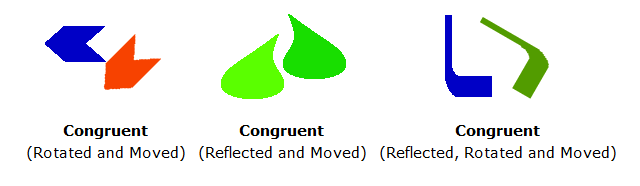
Often we can tell when polygons are congruent simply by matching the shapes to each other.



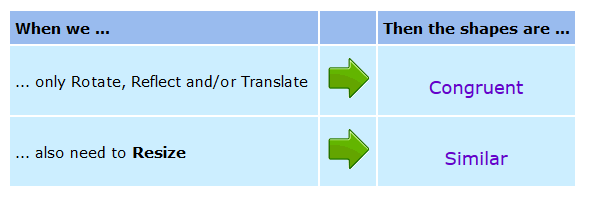
If a combination of ***rotations***, ***reflections*** and/or ***translations*** can make two polygons match then they are congruent!

Note that after any of those transformations the side lengths and angle values are still the same! That is, the polygon does not lose its “shape” during the transformation.

Examples:

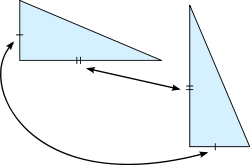


So what’s the difference between *congruent* and *similar*? Something is *similar* but not *congruent* when it has been **resized**.

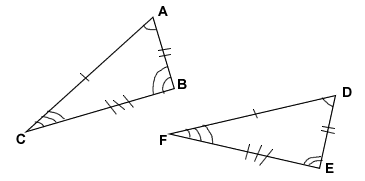


So a triangle with side lengths 3,4,5 is *similar* to a triangle with side lengths 30, 40 and 50 as the second triangle is 10 times larger!

Note that when something is *congruent* in a drawing we use the following marks to indicate it:

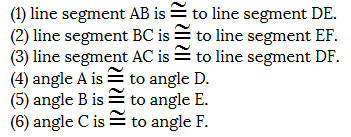


The single hatch marks indicate one equal side and the double hatch marks a second equal side. Similar marks indicate equal angle.

In this case, triangle ABC ≅ triangle DEF.

**IMPORTANT!** When showing polygon congruence **the order of the letters matters**! In the above case the first letters of each triangle, **A and D, must be corresponding angles. So to with B and E and C and F**! Be careful when stating which polygons are congruent. In the above case triangle CBA is NOT congruent with triangle EDF!

So, from the above diagram we can tell which angles are congruent and which sides are congruent.



In the upcoming days we will find out what methods allow us to say with certainty which polygons are congruent and why.

More examples of congruent polygons! How do we mark the second pair to show they are congruent polygons, like the first pair is marked?

